

The background is a dark blue surface covered with faint, white mathematical formulas and diagrams. Scattered across this background are various school supplies: a red alarm clock at the top center, a wooden set square at the top right, a pair of black-rimmed glasses on the left, a blue USB drive on the right, a white and yellow USB drive on the left, an orange pencil at the bottom left, a white paper airplane in the center, a wooden ruler at the bottom right, and two silver paper clips at the bottom.

ALPHA-STUDY POINT COCHING

Empowering Students, Enriching Lives at classes

- **Mathematics**
- **Social Science**
- **Science**
- **English**
- **Weakly test and Round test**

Chapter-1

(Real Number)

Exercise 1.1

1. Express each number as a product of its prime Factors :
(i) 140 (ii) 156 (iii) 3825 (iv) 5005 (v) 7429
2. Find the LCM and HCF of the following pairs Of integers and verify that $\text{LCM} \times \text{HCF} = \text{Product of the two numbers}$.
(i) 26 and 91 (ii) 510 and 92 (iii) 336 and 54
3. Find the LCM and HCF of the following integers by applying the prime factorisation method.
(i) 12, 15 and 21 (ii) 17, 23 and 29 (iii) 8, 9 and 25
4. Given that $\text{HCF}(306, 657) = 9$, find $\text{LCM}(306, 657)$
5. Check whether 6^n can end with the digit 0 for any natural number n .
6. Explain why $7 \times 11 \times 13 + 13$ and $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 5$ are composite numbers.

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7. There is a circular path around a sports field

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Sonia takes 18 minutes to drive one round of the field, while Ravi takes 12 minutes for the same. Suppose they both start at the same point and at the same time, and go in the same direction. After how many minutes will they meet again at the starting point ?

Examples

Example 1 : consider the numbers 4^n , where n is a natural number.

Check whether there is any value of n for which 4^n ends with the digit zero.

Example 2 : Find the LCM and HCF of 6 and 20 by the prime factorization method.

Example 3 : Find the HCF of 96 and 404 by the prime factorization

method. Hence, find their LCM.

Example 4 : Find the HCF and LCM of 6, 72, and 120, using the prime

factorization method.

Exercise 1.2

1. Prove that $\sqrt{5}$ is irrational.
2. Prove that $3 + 2\sqrt{5}$ **is irrational.**
3. **Prove that the following are irrationals:**
 - (i) $\frac{1}{\sqrt{2}}$
 - (ii) $7\sqrt{5}$
 - (iii) $6 + \sqrt{2}$

Example 5 : Prove that $\sqrt{3}$ is irrational.

Example 6 : Show that $5 - \sqrt{3}$ is irrational.

Example 7 : Show that $3\sqrt{2}$ is irrational.

- Fill in the blanks :-

1. $\sqrt{5}$ is _____ number. (Rational, Irrational, Integer)

March, 2022

2. $4 + 2\sqrt{9}$ _____ number. (Rational, Irrational, Integer)

July, 2022

3. $\sqrt{81}$ is _____ number. (Rational, Irrational, Integer)

July, 2023

4. $3 + 2\sqrt{5}$ _____ number. (Rational, Irrational, negative Integer)

M--2024

5. $\sqrt{7}$ is _____ number. (Rational, Irrational, whole)

March, 2026

6. HCF of 12, 15, 21 is _____. (1, 3, 5)

June, 2024

7. HCF of (11, 13) = _____. (1, 143, 2)

June, 2025

8. If $1080 = 2^x \times 3^y \times 5$ then $x - y =$ _____. (2, 0, 3)

March, 2025

9. If two positive integers p and q can be expressed as
 $p = ab^2$

and $q = a^3b$, where a, b being prime numbers, then

LCM (p, q) _____. (ab, a^3b^2, a^3b^3)

March, 2023

- True or False :-

1. The HCF of 15 and 35 is 7.

March, 2022

2. The HCF of 19, 25, 39 is 1.

July, 2022

3. The HCF of 17 and 23 is 1.

March, 2023

4.The HCF of 17, 23, and 29 is 1.

July, 2023

5.The HCF of 17, 23, and 29 is 1.

March, 2024

6.The HCF of 12, 15 and 21 is 1.

March, 2025

7.HCF (6, 72) = 6.

March, 2026

8. $\sqrt{2}$ is an irrational number.

March, 2025

9.The sum of the rational and an irrational number is irrational.**June2025**

10.The product and quotient of a non-zero rational and irrational number is rational. **June, 2024**

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M.O :-

• Fill in the blanks :-

1. $\sqrt{1}$ is _____ number. (Rational, Irrational, Integer)

2. $\sqrt{2}$ is _____ number. (Rational, Irrational, Integer)

3. $\sqrt{3}$ is _____ number. (Rational, Irrational, Integer)

4. $\sqrt{4}$ is _____ number. (Rational, Irrational, Integer)

5. $\sqrt{5}$ is _____ number. (Rational, Irrational, Integer)

6. $\sqrt{6}$ is _____ number. (Rational, Irrational, Integer)

7. $\sqrt{7}$ is _____ number. (Rational, Irrational, Integer)

8. $\sqrt{8}$ is _____ number. (Rational, Irrational, Integer)

9. $\sqrt{9}$ is _____ number. (Rational, Irrational, Integer)
10. $\sqrt{10}$ is _____ number. (Rational, Irrational, Integer)
11. $\sqrt{11}$ is _____ number. (Rational, Irrational, Integer)
12. $\sqrt{13}$ is _____ number. (Rational, Irrational, Integer)
13. $\sqrt{17}$ is _____ number. (Rational, Irrational, Integer)
14. $2 + \sqrt{3}$ is _____ number.
15. $7 + \sqrt{4}$ is _____ number. (Rational, Irrational, Integer)
16. $5 + \sqrt{25}$ is _____ number. (Rational, Irrational, Integer)
17. $3 + \sqrt{5}$ is _____ number. (Rational, Irrational, Integer)
18. $7 + 5\sqrt{4}$ is _____ number. (Rational, Irrational, Integer)
19. $2 + 3\sqrt{3}$ is _____ number. (Rational, Irrational, Integer)
20. $9 + 7\sqrt{1}$ is _____ number. (Rational, Irrational, Integer)

Part - F

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22. HCF of 6 and 20 is _____. (0, 1, 2)
23. LCM of 96 and 404 is _____. (4040, 9696, 0)
24. LCM of 6 and 20 is _____. (30, 60, 90)
25. HCF(6, 72, 120) _____. (0, 1, 6)
26. HCF of 8, 9 and 25 is _____. (0, 1, 2)
27. If two positive integers p and q can be expressed as
 $p = a^3 b^2$

and $q=a^3b^2$, where a, b being prime numbers, then
LCM (p, q) _____. (ab, a^3b^2, a^3b^3)

28. If two positive integers p and q can be expressed as
 $p=ab^2$

and $q=a^3b$, where a, b being prime numbers, then
LCM (p, q) _____. (ab, a^3b^2, a^3b^3)

29. If two positive integers p and q can be expressed as
 $p=xy$

and $q=xy$, where a, b being prime numbers, then
HCF (p, q) _____. (xy, x^3y^2, x^3y^3)

30. If two positive integers p and q can be expressed as
 $p=a^2b^3$

and $q=a^5b^2$, where a, b being prime numbers, then
HCF (p, q) _____. (ab, a^2b^2, a^3b^3)

FORMULAS IN THESE CHAPTER

$$\text{HCF}(a, b) \times \text{LCM} (a, b) = a \times b$$

- HCF and LCM is never became zero (0).

Best of luck

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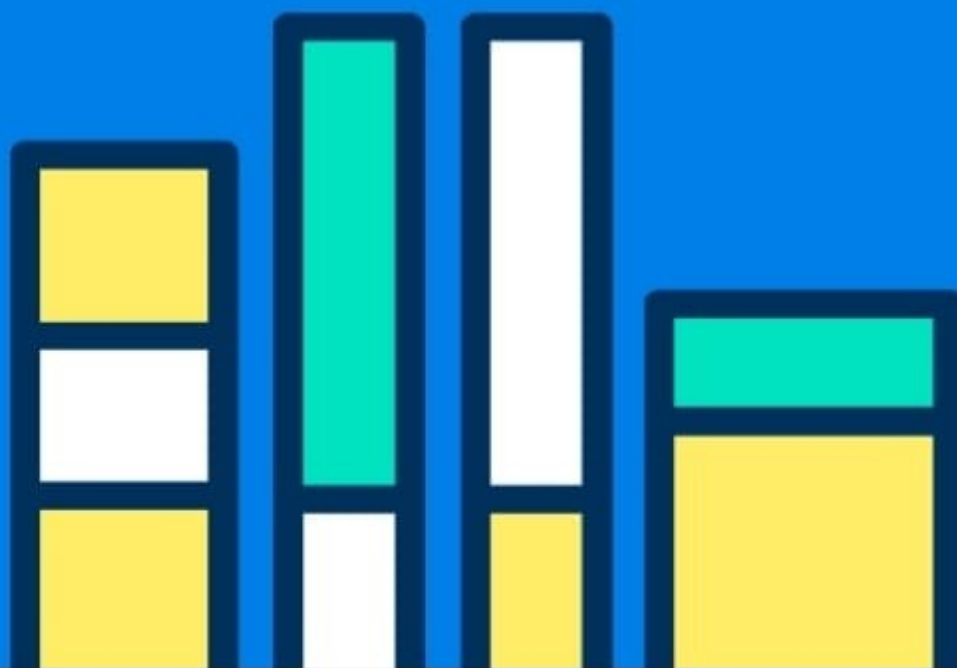
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